AIRCRAFT INFORMATION

Pipistrel
Sinus

80 HP (Rotax 912 UL2)

Introduction

This document is published for the purpose of providing general information about the Pipistrel Sinus Aircraft. Distributors/promoters and customers should familiarize themselves with this document to assist in their evaluation of this aircraft.

Should more information be required, please contact

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This document has been produced for the Pipistrel Sinus Aircraft in May 2012. With the ongoing development of the aircraft Pipistrel reserves the right to revise this document whenever occasioned by product improvement, government/authority regulations or any other good cause.

General Description

All information herein applies to the Pipistrel Sinus aircraft fitted with the Rotax 912 80HP engine. The Pipistrel Sinus aircraft is a pre-molded, composite built, two seat, single engine, high wing, tricycle design, high performance and very economical Light Sport Aircraft (LSA). The aircraft is targeted to recreational flyers looking for a fully featured aircraft at very reasonable pricing but has also found acceptance in flying schools and the training market looking for a very easy to operate, low cost and independent soaring solution.
The Sinus motorglider is a strutless 49' 1½" (15 m) wing span motorglider, powered by the 80hp Rotax 912 4-stroke engine and available as a ready-to-fly aircraft or as a kit in LSA, Ultralight or experimental categories in most world markets

Basic Information

Sinus 912	Dimensions
wing span	49 ft 1 inch (14.97 m)
length	21 ft 3 inch (6.50 m)
height	6 ft (1.82 m)
wing surface	132 sqft (12.26 m2)
vertical fi n surface	12 sqft (1.1 m2)
horizontal stabilizer and elevator surface	17.5 sqft (1.63 m2)
aspect ratio	18.3
flaperon positions	-5°, 0°, +9 °, +18 °
centre of gravity (MAC) 20% - 39%	centre of gravity (MAC) 20% - 39%
Propeller	Pipistrel Vario

Weights, center of gravity and fuel information

The design maximum takeoff weight for the Pipistrel Sinus aircraft is 1290 lbs (585 kg) with around 640 lbs (290 kg) useful load and the fuel capacity is 25 US gallons (100 liters) when fitted with the optional long-range fuel tanks.

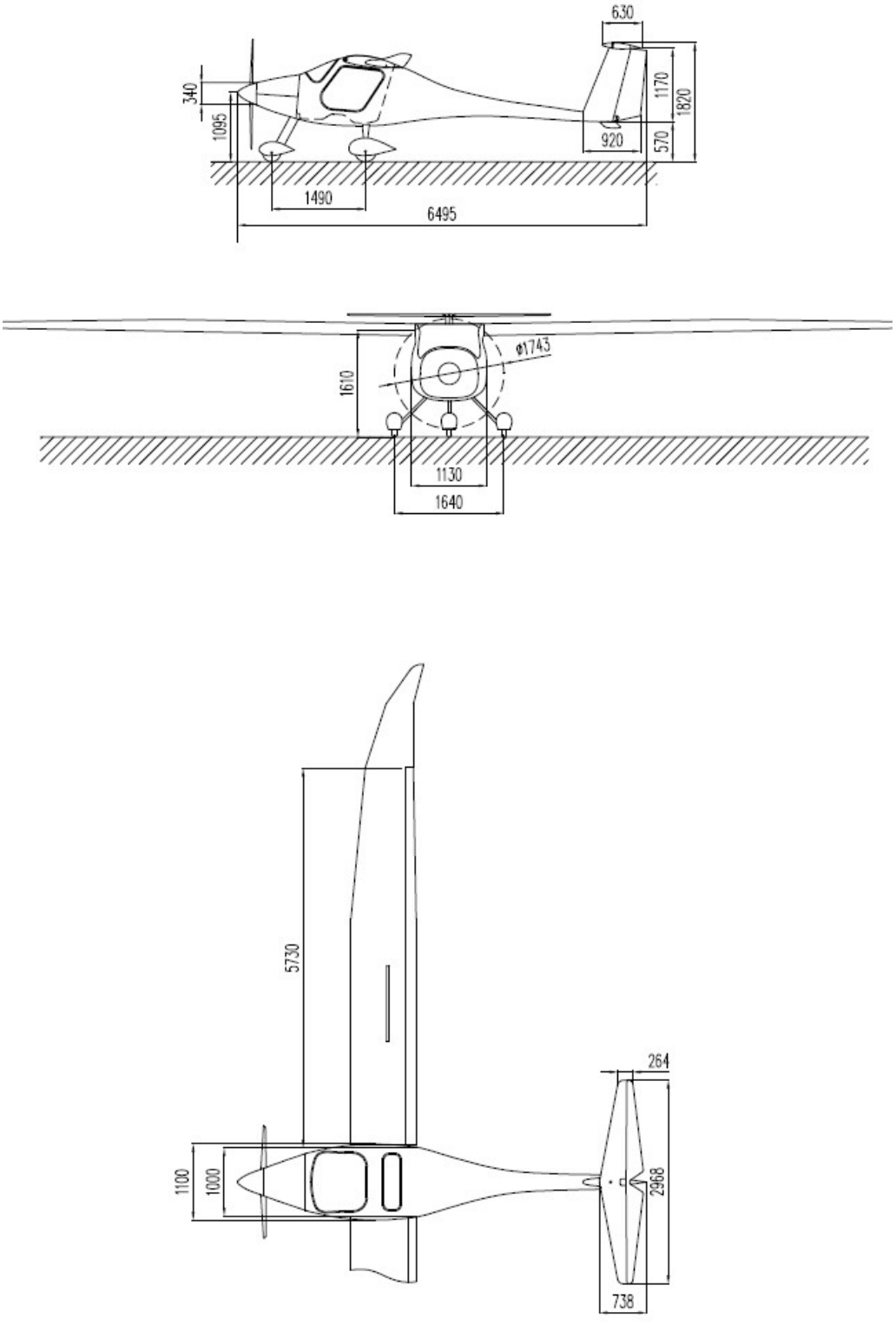
Sinus 912	**80 hp Rotax 912**
maximum takeoff weight	1290 lbs (585 kg)
maximum landing weight	1290 lbs (585 kg)
typical empty weight	650 lbs (295 kg)
payload without fuel	640 lbs (290 kg)
payload with full fuel (25 US gal/100 l)	481 lbs (218 kg)
baggage allowance, maximum (baggage area floor limit)	55 lbs (25 kg)
baggage allowance, typical with full fuel	55 lbs (25 kg)
fuel capacity, total (long range tanks)	25 US gal (100 l)
fuel capacity, usable	24.5 US gal (98 l)
fuel weight full	159 lbs (72 kg)
endurance with 30 minutes reserve	7.7 hours
fuel flow at cruise speed	2.9 US gph (11.2 l/h)
range at cruise speed excluding reserve	850 NM (1575 km)
takeoff - ground roll - at MTOM	430 ft (132 m)
takeoff total distance over 50 ft obstruction at MTOM	760 ft (232 m)
landing distance over 50 ft obstruction	885 ft (270 m)
absolute ceiling at MTOM	23,600 ft (7200 m)

Design loads

+4 G, -2 G All parts have been tested to a minimum safety factor of 1.875, meaning they were subjected to a load of at least 7.5 G during testing.

3-view drawing

Showing the Pipistrel Sinus in Nose Wheel (tricycle) configuration, dimensions are in mm.



Performance

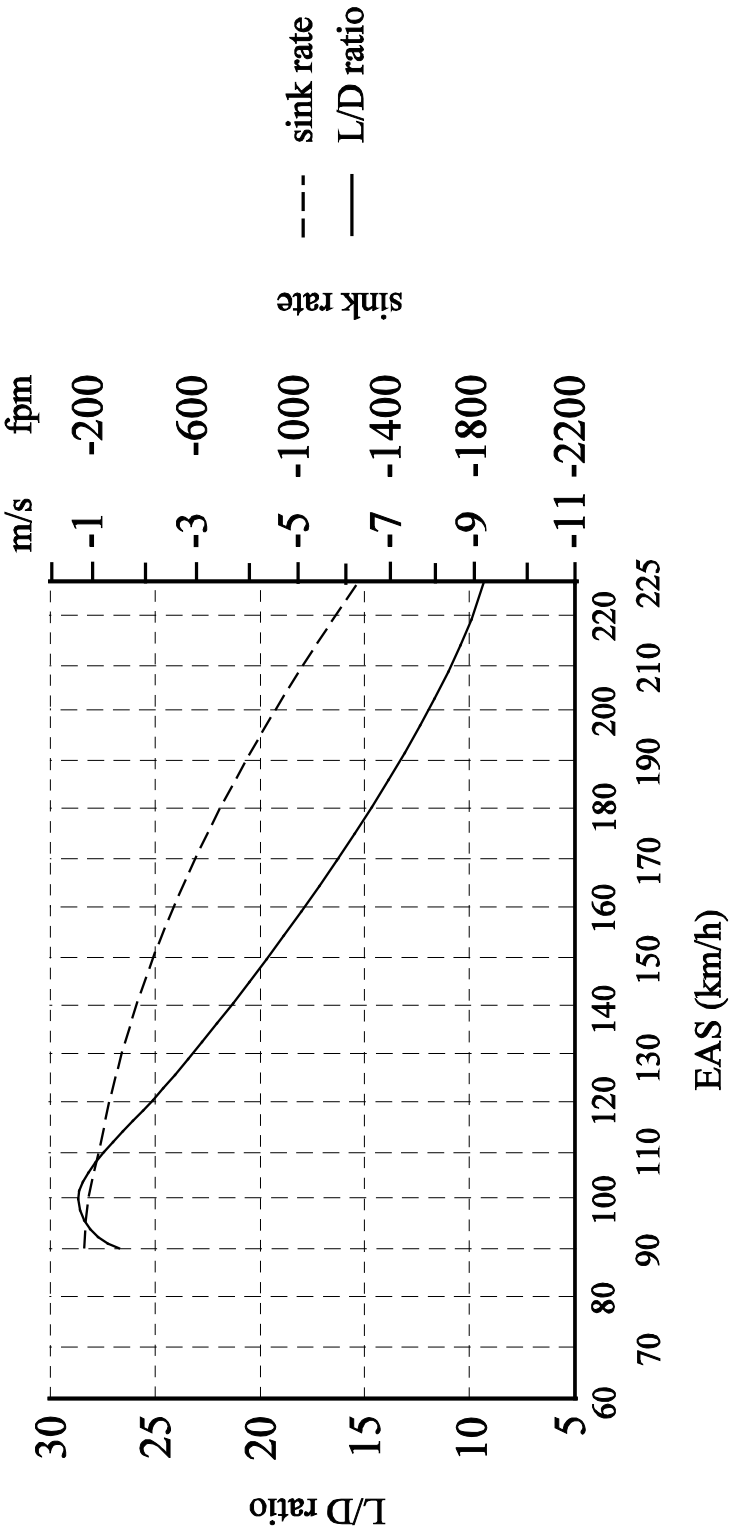
Data published here is for take-off weight of 1290 lbs (585 kg), ISA conditions at sea level.

	Velocity	IAS kts (kmh)	Remarks
VS	Stall speed clean	**40 (74)**	Stall speed flaps up
VS0	Stall speed landing configuration	**34 (64)**	Stall speed flaps full
VFE	Max. speed flaps extended	**70 (130)**	Do not exceed this speed with flaps extended (+15, +25 degrees)
VA	Design maneouvring speed	**76 (141)**	Do not make full or abrupt control movements above this speed
VNE	Velocity never to be exceeded	**120 (222)**	Never exceed this speed in any operation
VNO	Velocity for normal operations	**108 (201)**	Maximum structural cruising speed in turbulent air

Airspeed indicator markings

MARKING	IAS [kts (km/h)]	Definition
White band	34 -70 (64 - 130)	Full Flap Operating Range. Lower limit is the maximum weight VS0 in landing configuration. Upper limit is maximum speed permissible with flaps extended
Green band	40 - 76 (74 - 141)	Normal Operating range lower end is maximum weight VS1 at most forward C.G. with flaps retracted. Upper limit is maximum structural cruising speed
Yellow band	76 - 120 (141 - 222)	Maneuver the aircraft with caution in calm air only
Red line	120 (222)	Maximum speed for all operations. VNE
Blue line	62 (115)	Best climb rate speed (V_Y)

Sinus Polar



What is new?

The Pipistrel Sinus was the first release in the Pipistrel family of aircraft; introduced at Aero Friedrichshafen in 1995 it has already been a huge success with more than 400 aircraft delivered. The Pipistrel Sinus aircraft has evolved over the years from the original Rotax 503 powered aircraft through to the now more modern Rotax 912 engine. Whilst the airframe has basically stayed the same there have been modifications to the aerodynamics and flutter resistance as well as instrument panel, ergonomics and safety features.

Geometry

The Sinus is equipped with positive and negative flaperons, airbrakes and tail wheel (optional nosewheel). It is manufactured from hi-tech epoxy resin, fibreglass, carbon and kevlar composites. The airfoil used on the wings is IMD 029-b (Orlando, Venuti).

Structure

The cabin is properly insulated from noise and very comfortable for even those long flights. The seats are ergonomic with an adjustable head rest. Both the pilot and passenger pedals have differential toe brakes fitted. The pedals are adjustable forward and aft in flight and are manufactured from stainless steel. All controls are easy to use and reach from both seats and dual pedals and sticks mean the aircraft can be flown from either seat. The wing tanks have the fuel cap on top, as well as a visual check within the cockpit for the fuel level. The standard capacity is 15 gallons with a long range option increasing the capacity to around 25 gallons.

The main landing gear is aerodynamically profiled and made of composite materials. The main wheels have strong hydraulic disk brakes and the tail wheel or nosewheel option is directly controlled by the pedals. The airbrakes on top of the wing allow landing the Sinus in very short distances over high obstacles.

Assembly

The Sinus assembly is very simple, just like conventional gliders the wing control connections are automatically locked on connection of the wings. It takes most owners about 20 minutes to rig or de-rig the aircraft.

Powerplant

The Sinus 912 is our most popular aircraft and It uses the legendary 80 hp Rotax 912, 4 cylinder 4-stroke engine (now with a 2000 TBO) which allows the

Sinus to become a 'super sophisticated' motorglider just like the 'real ones' but at a 1/3 of the price. If you want to spoil yourself and your passenger, the Rotax 912 is the engine of choice for the vast distances we travel.

Frequently Asked Questions (FAQ)

This section is an attempt to sum up various questions people may have about the Pipistrel Sinus Aircraft.

What is the width of the cabin?
43.3 inch

What is the weight / fuel consumption penalty for the nose wheel version?
The nose wheel version adds 16 lbs in empty weight and increases the fuel flow by 0.4 gph at cruise speed.

Is there a parking brake?
The parking brake is available as an option together with Beringer high performance tires and wheel brakes.

What is the typical baggage allowance?
Baggage safely fits in the solid luggage compartment behind the seats, which is easily accessible. Baggage allowance varies upon the level of equipment, etc. and can be calculated for each individual aircraft using the formulas in Flight manual and Maintenance manual, Section Weight and Balance.
However, typical values for the Sinus 912 are 60 lbs for aircraft without the rescue system and 29 lbs when the rescue system is installed on board.

Is there a side luggage access door?
The side luggage access door is available as an option and provides easy and direct access to the luggage area from the outside. It features a lock so all your items inside will be safe. For much larger objects, the access to the luggage compartment is through the cabin - the seats fold in seconds and this provides a large opening and additional access to the luggage compartment.

Can you fly without the door for aerial photography?
Yes. You can remove one door completely, whereas the other door must be in place, closed and locked. With this configuration there are no extra airspeed restrictions, however the maximum recommended airspeed is 108 kts.
Removing the door is a simple and quick procedure and only requires two safety pins to be removed.

Can I do aerobatics, spins in the Sinus 912?

The design basis of the Sinus 912 follow the strictest EASA CS-22, CS-VLA and LTF-UL (sections) certification standards, as well as their FAA LSA rules. The Sinus 912 is a high-performance airplane and not suitable for aerobatics, despite the +4 G, -2 G allowable loads. Pipistrel cannot prevent people doing aerobatic maneuvers in the aircraft, but we do not approve it - the reason is in aerodynamics. The Sinus 912 has so little drag that it picks up speed MUCH quicker than other aircraft. This can be dangerous in aerobatic maneuvers (also spins, which are completely recoverable) and an average pilot can very quickly overstress the airframe because of airspeed. The aircraft can reach 145 kts in a dive in a matter of seconds! But flown correctly it is a very safe and forgiving aircraft.

Exterior paint

The paint used is a special acrylic based pigment, which is applied during the molding process. Pipistrel aeroplanes are not after-painted like most other aeroplanes - instead, paint is applied onto/into the structure while molding. This makes the paint much more durable and resistant to UV light and environmental contaminants. Recommendations for care and cleaning of the aircraft can be found in the Flight manual and Maintenance manual, section Handling and Maintenance, chapter Keeping your aircraft in perfect shape.

Is the leather upholstery offered as optional equipment true leather? What colours are available?

Yes, we use 100% genuine NAPA leather with Bovine texture in a wide choice of colors. The customer can choose the color of the seats and surrounding upholstery (side carpets, firewall, instrument panel pockets etc.) separately. Up to two different colors per aircraft can be selected, for example: Red seats with Vanilla interior.

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